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SALT

PROVED TO BE

AN EXCELLENT AND CHEAP MANURE,

BY THE

TESTIMONIES OF SCIENTIFIC MEN,

AND THE

RECENT EXPERIENCE OF

AGRICULTURISTS

IN VARIOUS PARTS OF THE KINGDOM,

WITH PARTICULAR DIRECTIONS FOR ITS USE,

Founded on Practice,

BY

SAMUEL HARRIS.

"It is Salt that makes all Seeds grow and flourish, and no Dung would in any way enrich Land, but for the Salt in it."

"He who makes two blades of grass, or two ears of corn grow where only one grew before, enriches himself, and benefits his country."

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PREFACE.

In publishing this tract, my principal object is to collect in a small compass, for general information, the sentiments of scientific men, and the practice of Agriculturists at various periods. Those who wish for further information may find it by the perusal of Mr. Johnson's valuable Essay, on the use of Salt for Agriculture, to which I am happy to acknowledge myself much indebted. For the encouragement of those who are inclined to use Salt for manure, the Bath and West of England Society, have offered two premiums of Fifty Pounds and Twenty-five Pounds for the best experiments in the use of it, made on not less than ten acres of Land. I shall feel obliged to any gentleman who will furnish me with the particulars of his experiments in the use of Salt, whether successful or otherwise; stating the time it was applied, the quality of the soil, the quantity applied per acre, and the effects resulting therefrom; particularly the quantity and quality of the grain, compared with that produced by the same soils where no Salt has been applied. I may add that I shall be always happy to give any further information that my limited knowledge on the subject may enable me to furnish.

S, H,

Weston-upon-Trent, near Lichfield,
Feb. 11th, 1828.

SALT

AN EXCELLENT AND CHEAP MANURE.

From experiments that have been made, it appears that Salt when *judiciously* applied to land is a cheap and invaluable manure: presuming that the very limited use of it for that purpose is owing to the want of knowing its valuable properties, and in what manner to apply it, the following observations are submitted to those who are inclined to use it, which every Farmer may now do with confidence, not under the impression that he is making any hazardous experiment, but that he is availing himself of the experience of those who have studied the subject and derived advantage from the practice, at various periods during the last two hundred years. It may appear surprising that its use for Agricultural purposes should be so little known; but it should be recollected that during great part of the last century the excessive tax thereon prevented the use of it, and it is only within the last few years that it has been fairly tried and duly appreciated.

The value of Salt as a manure consists principally in its property of retaining moisture in the soil, and absorbing it from the atmosphere; in very dry seasons, this property is invaluable to light and shallow soils. These descriptions require very liberal applications, and its value to them in a dry summer can scarcely be estimated too highly, particularly for Spring crops that often suffer from a lack of moisture at their roots. Salt should never be applied on very cold land except in small quantities for the destruction of weeds and vermin, or for moistening rough cloddy soils in a dry summer. The best time for applying it for a wheat crop is on the fallow or clover lay at the time of breaking it up, land thus prepared will be found to produce the most abundant crops and the quality will be excellent Where it has been

applied for turnips, the crops have been greatly improved, the fly has seldom taken them, and they have been known to stand through a severe winter without being materially injured by the frost. Pastures are much improved by it, where the grass is rough or sour, and where weeds, slugs, or other vermin abound. It may be applied any time from Autumn to early in the Spring, and it will be found to keep the turf fresh and luxuriant through the drought of Summer, and consequently improve the crops. If seed wheat be steeped in brine it tends to prevent the smut, and where mildew has appeared in a crop, sprinkling it with a solution of 1lb. of Salt to a gallon of water has been known to check its ravages in desperate cases. When applied to hay at the time of stacking, it prevents undue heating and checks its tendency to mould. Cattle prefer coarse damaged hay that has been salted to any other, and when their other food is salted, it assists digestion, promotes their feeding, and keeps them free from a variety of diseases, particularly the grease in horses and the rot in sheep.

In Gardens it will be found very useful for the destruction of weeds and vermin; and also to non-bearing Fruit Trees if applied in small quantities in trenches to the roots, a few feet from the stem. In composts of manure it will assist the decomposition of vegetable and animal remains that may be in the mixture.

The following testimonials of Gentlemen who have been induced to publish their knowledge and experience for the benefit of the Public are submitted in confirmation of the preceding remarks, and to stimulate others to imitate and profit by their example.

The use of Salt in agriculture in this country was prior to the time of the illustrious Lord Bacon, who died in 1626; in his Natural History, after speaking of the excellence of Sea Sand as a manure he mentions the benefit derived from applying a solution of Salt in water to various kinds of vegetables. Sir Hugh Platt, who published his Jewel House of Art and Nature in 1653, states, that "it is Salt that makes all seeds to grow and flourish, and that Dung when applied to land would in no way benefit the same if it were not for the Salt in it," he further says "that a gentleman sowed a bushel of Salt on a small

patch of barren ground at Clapham, that remained for a long period more fresh and green than any other part of the field.

The following is from the Report of Sir John Sinclair.—Mr. S. Robinson, of Myrehead, near Edinburgh, on the 1st Nov. 1818, applied 10 cwt. per acre to a piece of sandy land at the time of sowing his wheat; the part salted produced three bushel per acre more than the other part of the field which was very much blighted, the injury was scarcely apparent on the part that was salted. Dr. John Paris, of London, in his evidence before the House of Commons' Committee, April 6, 1818, observes "where wheat or barley has followed turnips, the land for which had been salted, the crops have escaped the mildew which has affected other lands adjoining." Mr. Thomas Briggs, of Luton, near Chatham, dated Sep. 25th, 1820, says, "I applied 10 cwt. of Salt per acre a short time before I sowed barley and clover, from which I obtained a crop far exceeding my expectation, as the land was poor and chalky. The clover is now in high condition. I tried the same quantity of Salt (on another field that was very foul and full of the worm,) with barley alone and obtained an excellent crop, though I did not expect it would be worth cutting." J. Hollingshead, Esq. of Chorley, Lancashire, says "For corn lands sown after a spring ploughing, 8 cwt. of Salt per acre should be applied immediately after the grain is covered in, this by meliorating the soil, destroying weeds and insects, and attracting moisture, will produce an abundant crop, and by sowing 5 or 6 cwt. annually, the land will be permanently productive."

Wm. Horne, Esq. of Liverpool, in a letter to the Right Hon. R. Vansittart, relates that a piece of land that had borne a crop of wheat of only 12 bushel per acre, was dressed with 10 cwt. of Salt per acre the following Midsummer, excepting that two ridges in the middle of the field were purposely left without it, on those two ridges the turnips totally failed, but the remainder produced a plentiful crop. In another instance of 4 acres of land completely worn out by successive tillage, 3 acres were sown with 12 cwt. per acre, and the other acre with 9 cwt. the crop was in general very good, but was visibly best where the greatest quantity of Salt had been used,

and in the severe winter of 1794-5 they were much less injured by the frost than those where no Salt had been applied.

Mr. Seckler, of Gwinear, Cornwall, applied 20 cwt. of Salt to poor exhausted land, soil clay inimical to turnips, and obtained a heavy rich crop, such a one as 100 ton of dung per acre would scarcely produce on the same land. It is observed in this district, that where land has been salted for two or three crops, the good effects are visible for at least seven years after.

The following communications were addressed to Mr. Johnson, Great Totham, Essex, and are extracted from his Essay on Salt:—

From Mr. James Chablis, of Pansfield, Essex, dated September 2nd, 1820:—"The soil which was of a loose hollow description, had 7 cwt. of Salt applied after the wheat had been sown in November, and it produced six bushels of wheat more per acre than was obtained from that part of the field to which none was applied, and the grain was four shillings per quarter better.

From Mr. Samuel Baynes, Heybridge, Essex, Dec. 10th, 1820:—I applied early in Nov. 1819, 7 cwt. of Salt per acre to part of a field of wheat, to the remainder of the same extent, 10 load of yard manure was applied—the part salted was very little mildewed and free from weeds and produced 360 sheaves, containing—36½ bushel per acre, the part to which no Salt was applied produced 220 sheaves, containing—17½ bushel per acre.

From the Rev. Thomas Brown, Gorleston, Yarmouth:—"In Oct. 1819, I collected 27 cart loads of sea weed, and spread them immediately wet as they were, on an acre of bean stubble and dibbled wheat upon it, I then applied to the next land 3 bushel of Salt per acre and 15 load of rich manure, and dibbled it also with wheat; the part to which the sea weed was applied produced three times the quantity produced from the other part of the field. The Salt contained in the weeds could not be less than from 18 to 20 bushels. I am convinced that the utility of Salt as a manure depends on a liberal use of it, having made some other experiments myself with small quantities from which no benefit was apparent."

From Mr. John Ranson, Sproughton, Suffolk, March

24th, 1820:—I applied 8 cwt. of Salt per acre to part of a field intended for barley—the Salted part was brighter and one week earlier than the other, at harvest the result was, Soil without any manure produced 30 bushels per acre, Soil dressed with 8 cwt. of Salt per acre produced 51 bushels per acre."

From Mr. C. Burke, of Capel, Suffolk ;—"On the 6th of April, 1820, I applied 6 cwt. of Salt to an acre of clover, the improvement was soon apparent, and the crop on the Salted acre was at least one third more than on any other acre in the same field."

Dr. Browrigg in an Essay published in 1748, says, "Salt is dispersed over all nature, it rises in vegetables, and from them is conveyed into animals; so that it may be esteemed the universal restorative of nature; when properly used as a manure it affords nourishment to corn and other vegetables, and renders kingdoms rich and fertile where it abounds."

Sir Humphrey Davy observes, "that fallowing affords no new source of richness to the soil, and the only case where this practice is beneficial appears to be in cleansing foul soils by the destruction of weeds and vermin" if this be correct, the use of Salt must be invaluable as it will effect in a short time all that is gained by fallowing and enable the farmer to keep his land constantly productive.

A real Farmer in the Farmers Guide published in 1768, says, "now I come to treat of the mother of all manures, Salt, for every sort of manure is higher or lower in value according to the Salt it has in it; formerly Salt was thought to be injurious, but experience has taught us wisdom, it is now found to be otherwise, provided it be judiciously applied according to the state of the land."

J. Hollingshead, Esq. in his Hints to a Country Gentleman, published in 1800, observes, "if Salt were allowed as a manure free from any restraints, the Farmer would be enabled to sow with Salt all the barren mountains in the kingdom, and that they would soon produce pasturage equal to a Salt Marsh." Mr. Wm. Bevin, in a letter to Sir T. Barnard that was read to the Committee of the House of Commons in 1818, after stating that part of a field of wheat soil, (a stiff clay) had been very much benefitted by the ap-

plication of Salt proceeds, " soon after the wheat appeared clover was sown and harrowed in, the advantage to this crop was full as great as to the corn, nearly in treble proportion to that not salted, and the effects of the Salt are now visible by the superior verdure it produces; the cattle are exceedingly fond of the hay taken off it, and will eat down the aftermarth quite bare before they will taste the grass on any other part of the field."

Mr. George Sinclair in his Essay presented to the Board of Agriculture, observes " that for the destruction of those powerful enemies to young crops, slugs, and worms, Salt is powerful and efficacious, for this purpose from 5 to 7 cwt. per acre should be applied on the surface."

J. C. Curwen, Esq. M. P. in his evidence before the Committee of the House of Commons, April 7th, 1818, reported that he had given Salt to his cattle of all descriptions daily since the preceding November with great advantage and he believes that nothing will promote the health of cattle and their good condition like a due application of it. —4 oz. per day were regularly given to fourteen oxen feeding on straw, steamed chaff, and turnips only, eight of them were weighed on the 13th of Feb. and again on the 17th of March, the increased weight on the eight was thirty stone, of fourteen pound per stone, during that period; he considers Salt highly useful in preventing the grease in horses and the rot in sheep. L. B. Hollingshead, Esq. in a communication to Mr. Parkes says, " in deep loamy dry soils upon which wheat has grown, after the crop is got in, the land should be repeatedly ploughed in the Spring and planted with potatoes, then spread 8 cwt. of Salt per acre; by this method a crop of wheat and another of potatoes may be produced alternately on the same ground for ever, instead of losing a year's produce by the old system of fallowing."

From Wm. Thurlow, Esq. Gosfield Park, Essex :— "In Oct. 1818, I applied 8 cwt. of Salt to an acre of grass land, this piece produced double the crop I obtained from the other part of the field where no Salt was applied."

The following communications I have recently received from Farmers in various parts of the Country :—

TO MR. S. HARRIS.

Hill Moreton, Warwickshire, Oct. 27th, 1827.

In 1824 I applied 12 cwt. of Salt per acre to part of a field intended for wheat, at the time of breaking up the clover ley, the Salt was applied at the time the wheat was drilled; the part that was salted produced an excellent crop and yielded full five bags per acre more than the unsalted part, which was very full of weeds, though the part to which the Salt was applied was remarkably clear of them. The next season I had a fine crop of barley from the same field without any additional manure, the summer being dry, the seeds failed; when the barley was carted I ploughed the land three times, and applied 10 cwt. of Salt per acre, and ploughed it in with my wheat, and obtained ten bags per acre of very fine quality. I have now a very fine plant of clover on the same field, though no other manure has been applied to it for three years. I have this year applied ten cwt. per acre at seed time to a piece of barley and ploughed it in with the seed, though the land was previously in very moderate condition, the produce was 6 quarters, 6 bushels per acre, and the quality very fine. I have now an excellent crop of turnips after vetches that were salted 10 cwt. per acre, when the turnips were sown. Having a wharf here and another at Rugby where most of the Salt used in this part of the country has been landed, I have had an opportunity of seeing the progressive increase of the Agricultural Salt trade in this district, as well as hearing the opinion of those who have made use of it, which may be interesting to you. In 1824, when Salt was first used to any extent, the consumption was 20 tons annually; 1825, 30 tons; 1826, 100; 1827, 300. Every Farmer that has used Salt (one excepted who applied only 4 cwt. per acre) has been so well satisfied, that he has continued to use it in greater quantities every year. It has been used indiscriminately upon all soils, and in very various quantities, sometimes it has been ploughed in before seed time, at others harrowed in with it, sometimes left on the surface, and at others applied on the green crop, the latter experiment has been repeatedly tried this season; and the crops at this time wear a very promising aspect. I have made dili-

gent inquiry, but have not heard a single instance where injury has been done, nor one in which any party has been dissatisfied with his experiment, though some have been made on a bold scale by applying 17 cwt. per acre.

JAMES SMITH.

TO MR. S. HARRIS.

Cow-Roast, near Tring, Herts, Nov. 27th, 1827.

I have used Salt for manure for the last four years on my Farm, (which is a light black loam) and have experienced great advantage from it in the quantity and quality of my grain. For wheat, I apply from 8 to 10 cwt. per acre about a week before seed time, or when I sow after clover, at the time of breaking up the ley; the crop of wheat that I obtained this year after clover, where it was salted, was very fine, the ears were large and the quality excellent; and I obtained one shilling per quarter above the highest price of any other wheat at Tring market on Friday week. For barley, I have used from 6 to 8 cwt. per acre at seed time, and have harrowed it in. I dressed half a field in this manner in the Spring, the different appearance while standing was very striking, as the salted part was very thick and strong, when it was secured it was still more apparent, the grain on the salted part being brighter and heavier than the other. I use it on my hay in all seasons, but apply the greatest quantity when it has been injured by the weather. This year I have a stack about thirty loads, that came off some of my worst land and was very harsh and rough, I sprinkled on the layers about ½ cwt. per ton; it is now in excellent condition, my cattle eat it freely, and do well upon it. Several of my friends salted their turnip land last year and had excellent crops, when there was a general failure in the neighbourhood owing to the excessive drought. I may add that after applying it on the clover lay, I have observed within a few hours after at least a dozen slugs dead on two feet square. While I see such obvious advantage arise from the use of Salt, I shall continue to use it freely. A gentleman whose farm joins to mine has used it for many years with great advantage to his crops, particularly for wheat and turnips, he has now a very fine crop of the latter on a field that was salted with 7 cwt.

per acre about a month before seed time, some of them are a yard in circumference; he has also used it on his hay and of late he has mixed it with chaff, when he has cut a quantity and gives it to his cattle of all descriptions. They are generally very healthy and feed better since he has given them salted food; this gentleman has remarked in conversation, that ever since he has used Salt, his land has been free from weeds and slugs.

THOMAS LANDON.

TO MR. S. HARRIS.

Rugby, Dec. 27th, 1827.

At Michaelmas 1826, I was first induced to try Salt as manure. I then applied 10 cwt. per acre for a crop of wheat, and reaped a most abundant one of excellent quality; though the land was very poor, being a black heathy soil, that had not produced a good crop during forty years that it had been in cultivation, previous to the application of Salt. This year I sowed the same field with oats without any additional manure, and have secured a very fine crop, they are laid at from 7 to 8 quarters per acre, and the weight at 44lb per bushel and are decidedly the best sample in the neighbourhood. The oats being off the ground early I have now an excellent crop of turnips in the same field, without any fresh manure. I applied 10 cwt. per acre at seed time to another turnip crop which has produced abundance, of fine quality. I shall continue to use Salt freely while it makes me such liberal returns.

WILLIAM. LADBROOK.

TO MR. S. HARRIS.

Rugby, Dec. 27th, 1827.

Having heard of the excellence of Salt as a manure, I resolved to try it last year for a wheat crop, I applied 12 cwt. per acre about two weeks before seed time, and had my expectations fully realized by the abundance and excellent quality of my wheat. In a field adjoining that was sown at the same time, with the same seed, the crop was mildewed about a month before harvest and turns out a very thin ordinary sample, and in quantity I do not expect to get half so much as from the salted field. I also applied 10 cwt. per acre to a field intended for turnips at seed time, and have obtained a fine

regular crop. My experience combined with that of many of my neighbours has been so satisfactory to me that I have salted all my wheat this season and its present appearance is very luxuriant. THOMAS BROMWICH.

TO MR. S. HARRIS.

Ashby Parva, Leicestershire, Dec. 29th, 1827.

My attention was first turned to Salt as a manure about four years ago; I then had a piece of pasture that was very rough and sour; having heard that Salt would improve it, I applied 7 cwt. per acre in April; on going into the field a few days after, I was surprised to find that the cattle had eaten all the rough grass, and the turf altogether was in a short time much improved. In hot summers, this field was generally very much burnt up previous to the application of Salt, from that time it has uniformly retained its freshness in the driest seasons; when the neighbouring pastures have been dried up. I was first induced to try it on arable land, on a field of wheat that early in the Spring appeared to be completely spoiled by the wire worm; which had been more or less the case with every crop produced by it for several years. Though I feared the crop was destroyed, I determined to try what effect 8 cwt. Salt per acre would have on it, which I applied, and in a few weeks it revived in an astonishing manner, and I had a very abundant crop, the quality of which was excellent, and have not seen any effects from the worm since the Salt was applied. I have also applied it to my hay about half a cwt. per load, and have found that my feeding cattle and horses have done remarkably well upon it; I have also mixed it with straw for cattle with advantage, the Salt softens it and assists its digestion. I have this year salted all my wheats with 15 cwt. per acre, and they are looking well. For turnips, I have applied 10 cwt. per acre in April, and ploughed it in; my crops have been much improved by it.—Indeed I am satisfied that if Farmers were generally acquainted with the advantage of using Salt, it would become the most universal manure. WILLIAM NURSE.

TO MR. S. HARRIS.

Caves Inn, near Lutterworth, Dec. 28th, 1827.

In 1826, I possessed a crop of wheat

on some land that had been recently broken up, I soon discovered that the wire worm had taken it, and as the season advanced it made such dreadful ravages among it, that it appeared likely to be entirely destroyed. Finding that it was not likely to come to a crop, I planted the field with potatoes. Having heard that Salt was very likely to destroy these destructive vermin, I determined to try it and to plant wheat upon it again; a few days before I drilled the wheat, 17 cwt. was applied to an acre, and ploughed in. I have been over the field this morning as well as many other times since the crop has been up, and have seen no trace whatever of the worm; my crop at present, is in a very luxuriant state. I have applied 10 cwt. per acre this season to a turnip crop at seed time, the soil not favourable to their growth, and from which I had never before a good crop; I have now an abundant one, equal both in quantity and quality to the crops on my best turnip land. I believe it to be an excellent manure for pasture, if applied in April or May, and that it tends greatly to cool land that is much exposed to the sun in a hot summer.

THOMAS BROMWICH.

TO MR. S. HARRIS.

Hill Moreton Lodge, near Rugby, Dec. 27th, 1827.

In 1826, I applied 10 cwt. of Salt per acre to a field intended for turnips, at seed time, and had a very abundant crop. This year I have had a crop of barley from the same field, without any other manure, the quality of which was very fine and the quantity much greater than I ever obtained before off the same land; it was previously of very moderate quality and had for years been over run with coltsfoot, which has not appeared since the Salt was applied. I was so fully satisfied with my own experiment and the favourable reports of my neighbours, who had tried it for their wheat, that I have salted all my wheat land this year and the crops are now in a very luxuriant state.

JOHN CLARKE.

TO MR. S. HARRIS.

Mitton, near Penkridge, Staffordshire, Feb 2nd, 1828.

I first used Salt as a manure in the Autumn of 1824, by applying it on a part of my Farm that was very much overrun with weeds, particularly sow thistles and coltsfoot; since the application of Salt those destructive weeds have never appeared, and I have observed that my crops of grain of all descriptions on land that had been salted were better in quality, and the produce more abundant than from the same description of land where none had been applied. I have uniformly found the greatest benefit from the application of Salt upon light soils, but where I have applied it on very cold land it has been injurious. There is one striking effect from Salt, that I have noticed to be uniform on all soils, that of giving strength and colour to the straw and wherever I have applied it, the corn has stood upright, where it was before the application uniformly laid and injured by the weather, and I have no doubt but the property of giving strength to the straw will be found the same under all circumstances. In 1826, I applied Salt to a part of a piece intended for turnips, and part of the field I dressed with yard manure. Although the turnip crop totally failed in my neighbourhood in every other instance, I had a most abundant crop on that part of the field that was salted, though they failed completely on that part where I applied the yard manure. The crop of barley that succeeded the turnips was very excellent in quality; the part that was salted was so much earlier than the other, that the latter continued growing after I had secured the former. I am just now thrashing the crop, and you will perceive by the samples that I have sent you, a striking difference between them both in the colour and condition; where no Salt had been applied the crop was laid and ripened unkindly, while the other was secured in the best condition possible. I have repeatedly found 1 lb. of Salt dissolved in a quart of cold water a cure for the gripes in horses in very desperate cases. From the circumstance of the Salt I applied being mixed with ashes, I had no means of ascertaining the exact quantity, but I think there was from 15 to 20 cwt. per acre applied.

THOMAS. ROGERS.

DIRECTIONS

For the use of Salt for Agricultural and other Purposes.

Crop, &c.	*Light shallow Soils.* Cwt. per Acre.	*Midling Soils.* Cwt per Acre.	*Heavy Rich Soils.* Cwt per Acre.	*Best time for applying.*	*May be applied with advantage.*
Fallows & Clover Lays	15 to 20	12 to 15	10 to 12	Breaking Up	Till near Seed time.
Wheat	12 to 15	10 to 12	8 to 10	Mo. before Seed Time.	Till end of Feb.
Barley and Oats ..	10 to 12	8 to 10	6 to 8	Ditto	Till near Seed time.
Beans and Peas ..	10 to 12	8 to 12	6 to 8	Ditto	Ditto
Potatoes	12 to 15	8 to 12	6 to 8	September to December	Till Seed time.
Onions	12 to 15	10 to 12	7 to 10	Ditto	Month before Do.
Carrots and Parsnips	12 to 15	10 to 12	8 to 10	Ditto	Ditto
Hops	12 to 15	10 to 12	8 to 10	Ditto	Early in Spring.
Pastures	7 to 10	6 to 8	4 to 6	Ditto	Till end of April.
Gardens	15 to 20	14 to 16	12 to 14	Ditto	Early in Spring.

Hay, a Quarter Cwt. per Ton—if much weathered, Half a Cwt. per Ton—Time of Stacking Composts of Manure, One Cwt. per Load.

Fruit Trees 4lb. applied in as many trenches round the Tree, about six feet from it.

SALT SHOULD NEVER BE APPLIED WITH THE SEED NOR ON VERY COLD WET LAND

Horses.....4 oz. per Day	Milch Cows.....4 oz. per Day	Calves.....1 oz. per Day.
Feeding Cattle.....4 Ditto	Yearlings .....3 Ditto	Sheep..... 2 Ditto

Scott, Printer, Burton.